

DELTA SUCROENERGIA

UNIDADE VOLTA GRANDE – CALDEIRA 03

REPORT PREPARED BY WILLIAN MENDES (DATE 07/07/2019)

SUMMARY:

Replacement of the Molex Profibus DP/PA communication module by the HMS EN2PB-R in the boiler 03 (steam generation). All analog instrumentation is interconnected in the Profibus PA network.

PROBLEM:

Two HMS EN2PB-R modules were used for the application of the Boiler (Profibus PA communication with field instrumentation). The acquisition of two new modules, one for the application of the Boiler and the other spare.

Use of two masters in the same Profibus DP/PA network. Due to the configuration of the HMS EN2PB-R module (use of more memory variables than necessary).

CONFIGURATION DETAILS:

In the figure below, the GSD of the model instrument LD303 (SMAR instrument manufacturer) has 2 slots available. The customer (Delta Sucroenergia) informs that only slot 0 with the configuration of "ANALOG INPUT (SHORT)" is already used by the application, and it is not necessary to assign another variable to slot1, only "EMPTY MODULE" can be included. allocate a variable in memory unnecessarily (over-allocation of memory).

When configured in slot "ANALOG INPUT (SHORT)" and in slot1 "EMPTY MODULE" and downloaded in the module EN2PB-R of HMS, the module will fail, being necessary to proceed with the reset through the software and USB interface.

Figure 01 - LD303 configuration slot1 as empty module

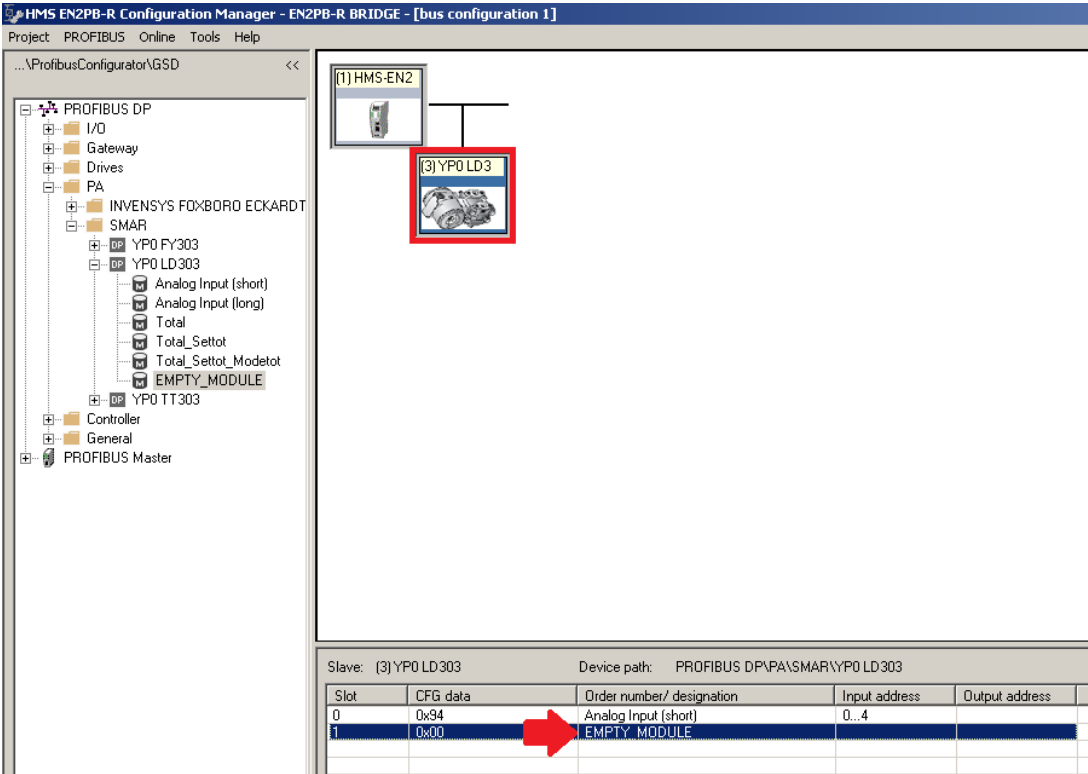


Figure 02 - LD303 configuration slot1 as Total

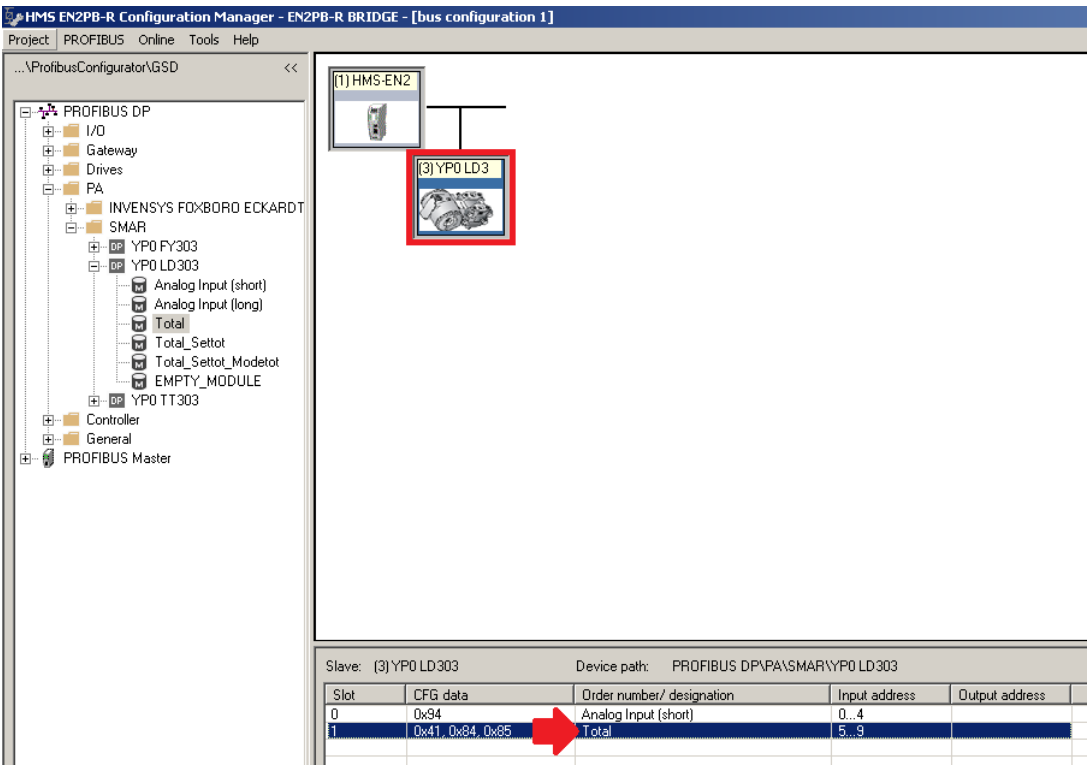


Figure 03 - LD303 configuration (Profibus Address)

To avoid failure of the HMS EN2PB-R module, you must configure slot1 with some variable, for example, "Total" variable totaled (ton/h), as indicated in the figure above.

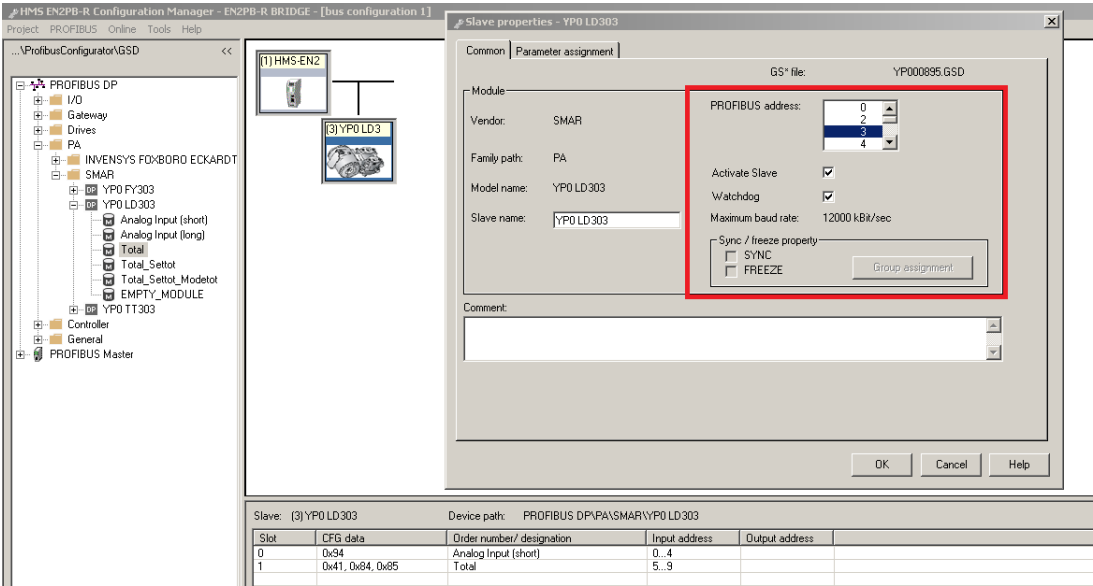


Figure 04 - LD303 configuration (I/O Type: Input, length 5) for slot0 as "Analog Input (short)"

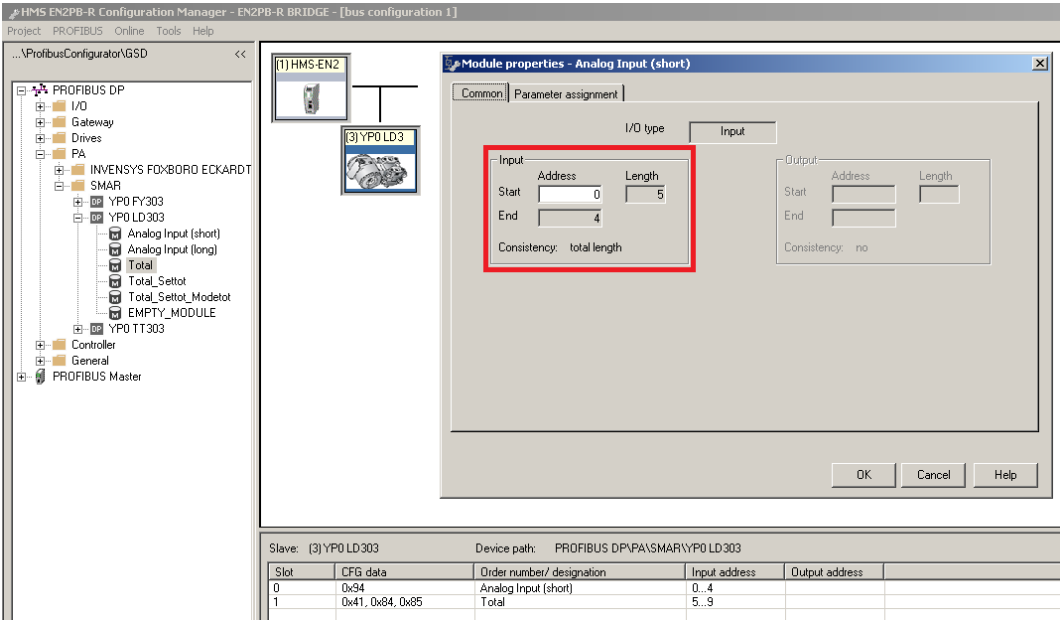


Figure 04 - LD303 configuration (I/O Type: Input, length 5) for slot1 as “Total”

The control application or SCADA does not use the variable configured in slot1 "Total", being allocated 5 bytes more in memory (per instrument) in the HMS EN2PB-R module unnecessarily.

HMS EN2PB-R Configuration Manager - EN2PB-R BRIDGE - [bus configuration 1]

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PROFIBUS DP

- I/O
- Gateway
- Drives
- PA
- INVENSY F0XBORO ECKARDT
- SMAR
 - YP0 FY303
 - YP0 LD303
 - Analog Input (short)
 - Analog Input (long)
 - Total
 - Total_Settot
 - Total_Settot_Modeltot
 - EMPTY_MODULE
 - YP0 TT303
- Controller
- General
- PROFIBUS Master

[1] HMS-EN2

[3] YP0 LD3

Module properties - Total

Common Parameter assignment

I/O type Input

Input

Address	Length
Start 5	5
End 9	

Consistency: total length

Output

Address	Length
Start	
End	

Consistency: no

OK Cancel Help

Slave: (3) YP0 LD303 Device path: PROFIBUS DP\\PA\\SMAR\\YP0 LD303

Slot	CFG data	Order number/ designation	Input address	Output address
0	0x34	Analog Input (short)	0..4	
1	0x41, 0x84, 0x85	Total	5..9	

Figure 05 - XM-210DP configuration the DLG XM-210DP GSD has 21 slots available.

HMS EN2PB-R Configuration Manager - EN2PB-R BRIDGE - [bus configuration 1]

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PROFIBUS DP

- I/O
 - Rockwell Automation
 - Telemecanique
 - DLG AUTOMAÇÃO INDUSTRIAL
 - XM-210DP
 - Channel 1
 - Channel 2
 - Channel 3
 - Channel 4
 - Channel 5
 - Channel 6
 - Channel 7
 - Channel 8
 - Channel 9
 - Channel 10
 - Channel 11
 - Channel 12
 - Channel 13
 - Channel 14
 - Channel 15
 - Channel 16
 - Digital inputs
 - Ambient temp.
 - Alarms 1 and 2
 - Relay 1 and 2
- TURCK
- Gateway
 - Schneider Electric GmbH
 - ProLinux Comm Gateways Inc.
 - ProSoft Technology, Inc.
- Drives
 - Telemecanique
- PA
- INVENSY FOXBORO ECKARDT
- SMAR
 - YP0 FY303
 - YP0 LD303
 - Analog Input (short)
 - Analog Input (long)
 - Total
 - Total_Settot
 - Total_Settot_Modeltot
 - EMPTY_MODULE
 - YP0 TT303
 - Analog Input (short)
 - Analog Input (long)
 - EMPTY_MODULE
- Controller
- General
- PROFIBUS Master

(1) HMS-EN2

(3) XM-210D

Bus addr...	Type	Name	Vendor	Comment
0				
1	Master	HMS-EN2PB-R	HMS Industrial Networks	
2				
3	Slave	XM-210DP	DLG AUTOMAÇÃO IND...	
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Figure 06 - XM-210DP configuration

It was verified in field tests that:

- If you do not configure assign the variables to all DLG XM-210DP module slots, the module does not connect to the Profibus network. It is necessary to assign the variables in all slots of the module as indicated in the figure below;
- If you assign the variables to all slots in the DLG XM-210DP module as indicated in the figure below and download the settings for the HMS EN2PB-R module, the module will fail and you need to reset through the software and USB interface.

Slave: (3) XM-210DP Device path: PROFIBUS DP\I/O\DLG AUTOMAÇÃO INDUSTRIAL LTDA\XM-210DP

Slot	CFG data	Order number/ designation	Input address	Output address
1	0x42, 0x01, 0x00, 0x01	Channel 1	0...1	
2	0x42, 0x01, 0x00, 0x02	Channel 2	2...3	
3	0x42, 0x01, 0x00, 0x03	Channel 3	4...5	
4	0x42, 0x01, 0x00, 0x04	Channel 4	6...7	
5	0x42, 0x01, 0x00, 0x05	Channel 5	8...9	
6	0x42, 0x01, 0x00, 0x06	Channel 6	10...11	
7	0x42, 0x01, 0x00, 0x07	Channel 7	12...13	
8	0x42, 0x01, 0x00, 0x08	Channel 8	14...15	
9	0x42, 0x01, 0x00, 0x09	Channel 9	16...17	
10	0x42, 0x01, 0x00, 0x0A	Channel 10	18...19	
11	0x42, 0x01, 0x00, 0x0B	Channel 11	20...21	
12	0x42, 0x01, 0x00, 0x0C	Channel 12	22...23	
13	0x42, 0x01, 0x00, 0x0D	Channel 13	24...25	
14	0x42, 0x01, 0x00, 0x0E	Channel 14	26...27	
15	0x42, 0x01, 0x00, 0x0F	Channel 15	28...29	
16	0x42, 0x01, 0x00, 0x10	Channel 16	30...31	
17	0x42, 0x00, 0x00, 0x11	Digital inputs	32	
18	0x42, 0x00, 0x00, 0x12	Ambient temp.	33	
19	0x42, 0x03, 0x00, 0x13	Alarms 1 and 2	34...37	
20	0x82, 0x00, 0x00, 0x14	Relay 1 and 2		0

As detailed above I await a response from the technical support of HMS as soon as possible to make the changes in the configuration of the HMS module.

Best regards

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Delta Sucrenergia S/A